Devonian to Basal Permian Lithostratigraphy in Southwestern Hakkari: A Perspective from Northern Arabian Mixed Carbonate–Siliciclastic Platform

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Abstract

The Middle Devonian–Lower Carboniferous succession in the Amanos Mountains to the west and in the Hakkari area to the east of the Hazro High are known as the Zap Group, divided intoYiginli (Middle–Late Devonian) and Köprülü formations (Late Devonian–Early Carboniferous). The Group is overlain by the Late Permian Gomaniibrik Formation. The thickness of the Yiginli Formation, in the Hakkari-Çukurca area, ranges between 200 and 300 m. The Vertebrate and microflora remains indicate a Famennian age for the top of the Yiginli Formation. Brachiopod samples recently collected from the Zap River Valley area allow to establish an upper Givetian age for the upper middle part of the Yiginli Formation which was until now considered as Famennian on the basis of its micropaleontological contents. In particular, the presence of Atrypids excludes an age younger than lower Frasnian. Studied brachiopods come from shell concentrations of various clayey-silty levels. The Köprülü Formation represents a variety of marine environments ranging from agitated shallow marine to muddy shelf conditions – below fair weather wave base – and then a return to more restricted shallow marine facies in the upper part. The Köprülü Formation was measured and investigated along the Zap 1 and Zap 2 sections located on the north-east of Köprülü village, 8 km north-west of Cukurca. The Köprülü Formation can be subdivided into three new members. The lower member is made of dark to grayish limestone and sandy limestone representing the transgressive phase covering the continental deposits of the Yiginli Fomation. The corals described here were collected in this member. The coral assemblage is mainly composed of small non-dissepimented solitary corals belonging to the genera Rotiphyllum, Zaphrentites, cf. Gorizdronia, gen. et sp. indet. and Amplexizaphrentis, including a new species, A. zapense, and the dissepimented coral Caninia aff. cornucopiae. The middle member is composed of thinly laminated dark grey calcareous shales and siltstone. Several sandstone layers are also intercalated. The upper part of this middle member is characterized by carbonate concretions embedded in sandy limestone. The fossils, including bivalves are well preserved in this member. The myalinid bivalves, with a few posidonid bivalves have been observed in dark grey calcareous shale horizons. The upper member is dominated by massive grayish sandy/dolomitic limestone with some dark shale intercalations.

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